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JANUARY 18.

The President, DR. RUSCHENBERGER, in the chair.

Twenty persons present.

JANUARY 25.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-one persons present.

Jos. J. Knox and Geo. H. Rex, M. D., were elected members.

Chas. Velain, of Paris, was elected a correspondent.

FEBRUARY 1.

Mr. GEO. W. TRYON, JR. in the chair.

Ten persons present.

FEBRUARY 8.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-seven persons present.

Note on Treeless Prairies.—Mr. THOMAS MEEHAN remarked that the absence of timber or arborescent growth on the grassy prairies of America, still continued to be a matter of controversy, but he believed that in the light of accumulating evidence, we might now come to a positive decision in regard to the question. The most prevalent belief had been that trees would not grow on these prairies,—and we have had theories relating to soil or climate, to show why they could not grow. Then there were others who believed that trees did grow there in ancient times, but had been burnt off, and kept burnt off by annual fires.

Mr. Meehan considered in detail, the authors who had propounded various theories, and the distinguished men who had advocated them, and said that it was evident climate could have nothing to do with the question, because in these prairie regions there were often large belts of timber lands, projected like huge arms into the grassy regions, with precisely the same climatal conditions over both. That the soil was not unfavorable, was proved now by the artificial plantations everywhere successful, and that the soil was unfavorable to the germination of tree seed, as suggested by Prof. Whitney, was on the face of it untenable from the fact that it required but the same conditions for the seeds of trees as for those of herbaceous plants, the number of species of which on the prairies was well known to be very large. Another great gain to our present knowledge, was that since the annual firing of the grassy prairies had been discontinued by the advance of civilization, the timber was everywhere encroaching on them. Among the facts which he offered in proof of this, was a reference to p. 505 of the 7th Report of the Geological Survey of Indiana, where Dr. Schneck shows how land which was once grassy prairie, is now covered with a luxuriant growth of forest trees; to the evidence of Major Hotchkiss, Geologist of Staunton, Virginia, that the Shenandoah Valley, now heavily timbered, was clear of trees in the early history of Virginia; to the discovery of buffalo bones, in caves near Stroudsburg, Pa., by Dr. Joseph Leidy,—now a timbered region, the buffalo only existing in open, grassy countries;[1] and to various traditions of settlers in some valleys now timbered, that the land was originally clear of trees. He pointed out that in all known parts of the United States at the present time, except the arid regions, where only drought-loving plants could exist, the natural result of freedom was the succession of forest growth. Seeds were scattered by winds or animals over acres of cleared land; if such land became neglected, these, again seeding in time, extended the forest area continually. The tallest growing vegetation, like trees, crowded out the weaker, and the forest naturally crowded out the lower growing and weaker herbaceous plants. He illustrated this by reference to the neglected cotton-fields of the Southern States.

From all this, the speaker said that it was evident that there was nothing in Nature either now or in the past, to prevent the gradual encroachment of the forest over the grassy plains, till long before the white man came here, the whole would have been completely covered by arborescent growth. Were there any artificial causes equal to the exclusion of trees, and yet permitting an herbaceous growth? If we were to sow a piece of land in the autumn with some tree seed and some seeds of annuals, the latter would be up, flower, mature and scatter their seed to the ground before the next autumn, and many of these seeds would be washed into the earth, or drawn into the earth by insects or small animals. But tree seed would make young trees, which would not again produce seed for ten or more years. If now, at the end of this first season, a fire swept over the tract, the seeds of the annuals which had found a slight earthy protection, would come up again the next summer, again seeding and extending the area. The trees would be burned down, and though perhaps many would sprout, successive burnings would keep them confined to one place. In short, under annual burnings, herbaceous plants could still increase their area annually, but trees could never get far beyond the line they had reached when the annual fire first commenced. There could be no doubt that an annual burning in a tract destitute of forest growth, would certainly prevent the spread of timber, or of any plant that required more than a year to mature seed from the time of sowing. Now, if we look at the actual facts, we find that the Indians did annually fire the prairies.

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[1] Since the reading of the paper, it has been brought to the attention of the author, that the bones may have belonged to the Wood Buffalo.

Father Hennepin, the earliest writer on Indian habits, noted that it was the practice in his time. There is little doubt but this practice of annual burning has been one extending long into the past. What object had they in these annual burnings? They must have known that the buffalo and other animals on which they were largely dependent for a living, throve only on huge grassy plains, and that it was to their interest to preserve these plains by every means in their power. Low as their power of reasoning may be, they could not but have perceived that while grassy herbage throve in spite of fires, perhaps improved under the fiery ordeal, trees could not follow on burned land. What could be more natural than that they would burn the prairies with the object of retaining food for their wild animals? If we have no difficulty in reaching a positive conclusion so far, we may now take a glance at the early geological times. Mr. Meehan then referred to the researches of Worthen, Whittlesley and others in Ohio, Illinois and other prairie regions. On the retreat of the great glacier, the higher lands and drift formation were probably high and dry long before the immense lakes formed from the melting and turbid waters ceased to be.

It was tolerably well understood that many species of trees and other plants which required a temperate atmosphere, retreated southwardly with the advance of the glacier, and advanced to higher latitudes on the glacier's retreat. Thus these higher ridges would become timbered long before the lower lands became dry. Evidence accumulates that man existed on this continent, in the far west, not long after the glacier retreated, though "not long," in a geological sense, may mean many hundreds of years. The lakes of glacial water would gradually become shallower from the deposit of the highly comminuted material brought down from higher land, from the wearing away of rocky breastworks as in South Pass, Illinois, as well as from the openings which would continually occur from nature's ever varying plan of streams under ground. In all events, the drying of these lakes would be from their outward edges first. Aquatics would give way to marsh grasses, and these to vegetation such as we now find generally spread over the prairie region. If now we can conceive of human beings such as we know the Indian races to be, already in more southern latitudes—having learned the fact that firing would keep down trees and aid in the preservation of the chase—following the retreat of the glacier to the higher lands, and still as they advanced northwardly, firing the plains up to the water's edge, it would certainly account for the absence of arboreal vegetation from these immense lacustrine lands from the very beginning of their formation. Of course with this view we should have to look for some evidences of man's existence, both on the lands which were once under water, as well as those which were timber lands at his first appearance there. He did not know how many such evidences have been or may be found. Man's traces in the past are at best but rare, and they would naturally be much more scarce in the lacustrine regions than in lands dry at the same epoch. At any rate, this part of his remarks he said, must be taken as mere speculation; but, as we could see on the basis of sound scientific investigation why there could be no trees on these grassy prairies within the range of indubitable history, it was a fair inference that some such cause had continued from the beginning; namely, that annual fires had ever been the reason why arborescent vegetation had never had an existence there.

The resignation of Mr. Edw. S. Whelen, as a member of the Council and Finance Committee, was read and accepted.

FEBRUARY 15.

The President, Dr. RUSCHENBERGER, in the chair.

Nineteen persons present.

A paper entitled "The Honey Ants of the Garden of the Gods," by Rev. Henry C. McCook, D. D., was presented for publication.

FEBRUARY 22.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-six persons present.

The death of Harry C. Hart, M. D., a member, was announced.

Mr. Isaac C. Martindale was elected a member of the Finance Committee, to fill a vacancy caused by the resignation of Mr. Edw. S. Whelen.

Mr. Charles P. Perot was elected a member of the Council for the unexpired term of Mr. Whelen.

Robert P. Field was elected a member.

John Brazier, of Sydney, N. S. W.; Rafael Arango, of Habana, and Chas. Mohr, of Mobile, Ala., were elected correspondents.

The following were ordered to be printed:—